RAFFINATE/TREATMENT/FERTILIZER

The waste steam from the solvent extraction system, known as raffinate, is primarily a solution of ammonium nitrate, nitric acid, metallic salts and minute quantities of uranium and the radioactive daughter products of normal uranium decay.

The solution first enters basin 4A and is treated with gaseous ammonia to neutralize the free nitric acid and precipitate metal ions as hydroxides or hydrated oxides. Removal of residual uranium and thorium is accomplished in this neutralization step.

After settling the precipitate, the solutions are pumped to basin 1A and treated with barium chloride which results in the precipitation of radium, thus eliminating most of the radioactivity from the liquid wastes.

For final treatment and settling the solution is pumped to basin 3A. In basin 3A, phosphoric acid is added to further reduce the uranium content of the solution. This produces a clear liquid or ammonium nitrate which is then pumped to the fertilizer surface impoundments for storage.

The treated raffinate (ammonium nitrate) is applied to SFC property at Rabbit Hill near Warner and land adjacent to the facility as a fertilizer. The land application is on approximately 10,000 acres of SFC property. The residual sludge or raffinate from this purification is stored and later transported to a uranium mill in New Mexico to recover uranium values.

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EXHIBIT

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